N62604.AR.001887
NCBC GULFPORT
5090.3a

FINAL PROPOSED PLAN FOR SITE 1 DISASTER RECOVERY DISPOSAL AREA NCBC GULFPORT MS

4/1/2014

TETRA TECH

PROPOSED PLAN FOR SITE 1 – DISASTER RECOVERY DISPOSAL AREA
NAVAL CONSTRUCTION BATTALION CENTER GULFPORT
GULFPORT, MISSISSIPPI
April 1, 2014

NAVY ANNOUNCES PROPOSED PLAN

This Proposed Plan presents the Navy's proposed remedy (***preferred alternative****) to address contaminants detected in soil and groundwater at Site 1, the Disaster Recovery Disposal Area, at the Naval Construction Battalion Center (NCBC) Gulfport. Figures 1, 2 and 3 provide feature and location depictions of the site.

This Proposed Plan was developed by the Navy as lead agency under the ***Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)*** and ***National Oil and Hazardous Substances Pollution Contingency Plan (NCP).*** The Navy consulted with and obtained the concurrence of the Mississippi Department of Environmental Quality (MDEQ) for this remedy proposal as a designated supporting agency under ***CERCLA***.

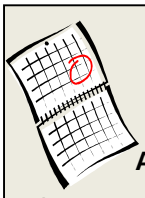
This document provides environmental information about the site, summarizes the remedial alternatives that were evaluated, explains the rationale used to support the ***preferred alternative*** for cleaning Site 1, and summarizes information found in detail in the Navy's previous ***Remedial Investigation (RI)*** and ***Feasibility Study (FS)*** Reports for Site 1 at NCBC Gulfport.

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of ***CERCLA*** and Section 300.430(f)(2) of the ***NCP*** to assist and involve the community in the decision-making process.

The public is invited to comment on this Proposed Plan during the Public Comment Period beginning on April 14, 2014, and ending on May 17, 2014. The Proposed Plan and other site documents are available for review at the NCBC Gulfport ***Information Repository***, which is located in the Gulfport Public Library (see the box at right for more information). Public comments will be considered in the selection of the final remedy and will be addressed in the Site 1 Decision Document.

*Words in ***italicized boldface*** are defined in the Glossary on 12.

Figure 1: *Site 1 is a 13.5-acre mainly grass and tree covered area in the western portion of NCBC Gulfport.*



MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD
April 14, 2014, to May 17, 2014

The Navy will accept written comments on the Proposed Plan during the Public Comment Period.

PUBLIC MEETING
April 17, 2014
6:00 – 7:30 pm

The Navy will hold a public meeting to explain the Proposed Plan and the alternatives evaluated in the ***FS***. Written comments will also be accepted during the meeting, which will be held at the Isiah Fredericks Community Center, 3312 Martin Luther King Jr. Boulevard, Gulfport, Mississippi.

INFORMATION REPOSITORY

All the technical and public information publications prepared to date for the site are available at the following location:

Gulfport Public Library
1708 25th Avenue
Gulfport, MS 39501
Telephone: (228) 871-7171

For more information about this plan, please call Mr. Gordon Crane, NCBC Gulfport at (228) 229-0446.

NCBC GULFPORT OVERVIEW

NCBC Gulfport is a Navy base located in the western portion of Gulfport, Mississippi in southeastern Harrison County about 1.2 miles north of the Gulf of Mexico. The installation is approximately 1,100 acres in size and currently consists of military housing, training, and support facilities.

SITE 1 HISTORY

The Site 1 landfill operated from 1942 to 1948. The landfill received wastes from the public works shops and the supply department. The waste included fuel, oil, solvents, paint, and paint thinners. The waste was transported to the site in 55-gallon drums and buried in unlined trenches. The waste disposal area at Site 1 was covered with soil when disposal activities ceased in 1948. Additional fill has been added over the years to construct parking lots and roads over certain portions of the site.

SITE 1 CHARACTERISTICS

Figure 2 shows the location of Site 1 in the western section of NCBC Gulfport. The site is approximately 13.5-acres in size and is a mainly grass and tree covered area with certain limited roadways, parking lot, and building improvements. The landfill area, shown in Figure 2, is located north of 7th Street, south of 8th Street and east of Colby Avenue and was recently used as a mock disaster recovery training village and as a training facility. The area adjacent to the northern portion of the site contains fairways and putting greens from the former base golf course, now used as a military training area.

Previously, this area included three ponds to the north of the landfill area known as the catfish ponds. Future use of Site 1 is anticipated to remain a field training area. A series of drainage ditches and canals collect storm water runoff at Site 1. There is a drainage ditch on the western side of the site that discharges on the northern side of 8th Street and a canal on the eastern side of the site that discharges south of 28th Street.

Figure 2: *Site 1 is located in the center of the western portion of NCBC Gulfport.*

This system flows through the base and off site to the north.

Environmental investigations began in 1985 with a base-wide ***Initial Assessment Study (IAS)*** to collect and evaluate evidence of possible contamination on the base. The ***IAS*** recommended a Confirmation Study to further explore findings that waste had been disposed at the site. The 1987 Confirmation Study found evidence that native soil may have been disturbed by excavation and disposal activities, but no significant contamination in the groundwater, ***sediment***, and ***surface water***. However, only one monitoring well was located downgradient of the waste disposal area.

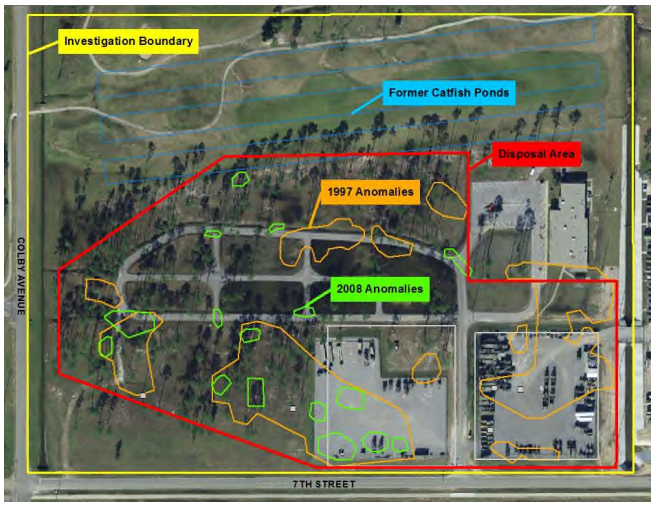


Figure 3: *The original study boundary was based on historical information and provided a starting point for the investigation.*

A field verification action was conducted in 1997 to evaluate the extent of buried waste at the site and to determine if hazardous constituents were present in subsurface soil.

In 1999, a basewide groundwater investigation found low levels of ***dioxins*** and ***pesticides*** in site groundwater. However, all results were less than their respective United States Environmental Protection Agency (U.S. EPA) established ***Maximum Contaminant Levels*** typically deemed as ***Applicable or Relevant and Appropriate Requirements (ARARs)*** for groundwater cleanup at ***CERCLA*** sites.

In 2008, the Navy completed several studies to further investigate Site 1: ***RI*** fieldwork including geophysical, soil gas, and ***landfill gas surveys*** as well as soil, groundwater, ***surface water***, and ***sediment*** sampling; a study to identify potential impacts of Site 1 on base construction projects; and a soil assessment at the foundations of the nine former buildings and in the western bank of the eastern drainage ditch. The studies found ***polychlorinated biphenyls*** on the western bank that were excavated and disposed of

during the subsequent military construction project completed as part of Hurricane Katrina reconstruction efforts.

In 2012, a Landfill Cover Assessment was completed in to evaluate the thickness and properties of the existing cover.

The results of investigations completed between 2008 and 2012 were included in the final ***RI*** Report, which was completed in 2013. The final ***RI*** Report concluded that conditions indicate that Site 1 is a typical military landfill with characteristics similar to a municipal landfill and that a ***Presumptive Remedy*** approach would expedite cleanup. (See highlight box on Page 3 for more information about ***Presumptive Remedies***.)

The ***RI*** Report also included human health and ***ecological risk assessments*** and identified ***contaminants of concern (COCs)*** for Site 1. ***COCs*** are contaminants that might pose a risk for human health or the environment. The following constituents were identified as ***COCs*** for Site 1:

Sediment	**Groundwater**
None	Tetrachloroethylene (PCE)
	Iron
Surface Soil	Manganese
Dieldrin	Thallium
Subsurface Soil	***Surface Water***
None	None

These ***COCs*** are described in more detail on page 11.

SCOPE AND ROLE OF THE ACTION

As part of the Navy's ***Environmental Restoration Program***, an ***IAS*** of the base was performed in the 1980s, and nine sites were identified for further investigation. After the IAS was completed, the Navy and regulators agreed no investigation was warranted for Site 9. Two additional sites were added later as the ***Environmental Restoration Program*** was conducted. Although the base has not been placed on U.S. EPA's ***National Priorities List***, the Navy is conducting investigations and cleanup activities following ***CERCLA*** and, to the extent practicable, the ***NCP*** in consultation with MDEQ as a supporting agency under ***CERCLA***. Decision Documents and cleanup have been completed for five other sites (Sites 3, 4, 5, 8, and 10), and an Action Memorandum was prepared for Site 6, which is in the groundwater monitoring phase. The overall strategy for the ***Environmental Restoration Program*** at the base is to perform cleanup on a site-by-site basis to ensure protection of human health and the environment, and to support base operations and overall Department of Defense mission accomplishment.

PRESUMPTIVE REMEDY FOR MILITARY LANDFILLS

In early 1990, the U.S.EPA began looking at various ways to streamline environmental cleanup. One approach was to use standardized proven technologies to cleanup similar sites such as municipal landfills. These standardized technologies for specific categories of sites are called "***Presumptive Remedies***". Use of ***Presumptive Remedies*** has been shown to ensure consistency in remedy selection and to reduce the cost and time required for investigation and remediation of sites with similar characteristics.

The U.S. EPA published guidance documents that specifically encourage source containment for military landfills with characteristics similar to municipal landfills. The application of containment as the ***Presumptive Remedy*** most often requires the design and installation of some form of landfill surface cover designed to meet the following three goals:

- Minimize infiltration of water that could dissolve contaminants in the landfill.
- Prevent direct contact with the landfill wastes and prevent movement of the waste by wind or water.
- Prevent exposure to landfill gas.

Site 1 fits the criteria for consideration as a military landfill as mentioned in the U.S. EPA guidance based upon the following:

- Risks are low level except for hotspots.
- Waste types are generally household, commercial, non-hazardous sludge, and industrial solid wastes.
- Lesser quantities of hazardous wastes are present as compared to municipal-type wastes, if any.
- No military-specific wastes (such as unexploded ordnance, radioactive waste, or biological/ chemical warfare agents) are present.

According to the U.S. EPA ***Presumptive Remedy*** guidance and based on the characteristics of the site, containment that prevents direct contact with the waste would be considered adequate to address contamination at Site 1. Since the waste is in near constant contact with the groundwater, minimizing the passage of storm water through the landfill is unnecessary. Additionally, management of landfill gas is unnecessary since testing did not indicate a need associated with Site 1.

Implementation of the ***preferred alternative*** described in this Proposed Plan will allow the current and reasonably anticipated future land use at Site 1 to remain a training area. The remedy is intended to be the only remedial action at Site 1 and addresses the

risks involved with potential exposure to soil and landfilled waste. Additionally, groundwater will be monitored to evaluate potential leaching from the landfill. The remedial action proposed will address the source area and reduce current risks posed to human health and/or the environment.

SUMMARY OF SITE RISKS

A summarized explanation of the evaluation and results of the ***human health risk assessment*** and ***ecological risk assessment*** is presented below. Detailed results and in-depth information can be found in the ***RI***. The ***RI***/***FS*** and other documents pertaining to Site 1 can be found at the ***Information Repository***.

Human Health Risk Assessment

A ***human health risk assessment*** estimates the likelihood of health problems occurring if no cleanup action were taken at the site. The following four-step process is used to calculate the baseline risk:

- **Data evaluation** – This first step looks at the concentrations of contaminants found at a site and compares the data to risk-based numbers to determine which contaminants are most likely to pose the greatest threat to human health. Data evaluated for Site 1 included surface soil, subsurface soil, groundwater, ***surface water***, and ***sediment*** collected during the initial ***RI*** and later field investigations.
- **Identification of exposure pathways** – In Step 2, consideration is given to the various types of people who could potentially be exposed to the contaminants identified in the previous step (referred to as potential ***receptors***), the concentrations to which people might be exposed, and the potential frequency and duration of exposure. The Site 1 exposure assessment evaluated possible site workers (construction, maintenance and industrial workers), recreational users and trespassers, and the most sensitive ***receptors***, adult or child residents (in the event that people would ever be allowed to live at the site).
- **Assess potential health dangers (also called toxicity assessment)** – In Step 3, the information from Step 2 is combined with information on the toxicity of each chemical to assess potential health risks. Two types of risks, cancer risks and non-cancer risks, are considered. The likelihood of any kind of cancer resulting from a site is generally expressed as an upper bound probability (for example, a "1 in 1,000,000 chances"). In other words, for every 1,000,000 people that could be exposed, one extra cancer case may occur because of exposure to site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected to from all other causes. The MDEQ considers any risk above one in one million unacceptable. For non-cancer health effects, a hazard index is calculated. The hazard index is a threshold level below which non-cancer health effects are no longer predicted. The MDEQ considers a hazard index of 1 or less as acceptable.
- **Estimation of potential risks** – In Step 4, it is determined whether site risks are great enough to cause health problems for people at or near the site. The results of the three previous steps are combined, evaluated, and summarized.

The results of the ***human health risk assessment*** are summarized in the table below:

Summary of Human Health Risks

Potential Receptor	Media	Contaminant of Concern
Industrial worker	Surface soil	Dieldrin
Future child resident	Surface soil	Dieldrin
	Groundwater	PCE, Iron, Manganese, Thallium
Future adult resident	Surface soil	Dieldrin
	Groundwater	PCE, Iron, Thallium
Lifelong resident	Surface soil	Dieldrin
	Groundwater	PCE

Screening-Level *Ecological Risk Assessment*

Ecological risks were evaluated for surface soil, ***sediment*** and ***surface water***. Screening of contaminants found at the site against regulatory criteria indicated a potential risk to invertebrates in surface soil if exposed to maximum concentrations of Dieldrin. No other ecological concerns were identified.

Overall Assessment

In addition to the inherent risk associated with potential exposure to landfill materials remaining at the site, the following potential risks to human health and the environment were identified:

- ***Dieldrin*** was identified as an ecological and human health risk in ***surface soil***,
- PCE, iron, manganese, and thallium were identified as potential human health risks in groundwater.

The Conceptual Site Model, shown on the following page, illustrates the Navy's current understanding of Site 1 conditions. It is the Navy's judgment that the ***preferred alternative*** identified in this Proposed Plan is necessary to protect public health or welfare or the environment from disposed waste, contaminants, or hazardous substances from this site, which may present and imminent and substantial endangerment to public health or welfare.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are the goals that a cleanup plan should achieve. They are established to protect human health and the environment and to comply with all qualifying federal and state ***ARARs***. The following ***RAOs*** were developed for Site 1 based on its current and reasonably anticipated future site uses:

- ***RAO 1:*** Prevent direct contact with the landfill waste and soil affected by the landfill, preventing unacceptable human exposure(s) to those ***media***.
- ***RAO 2:*** Prevent human and ecological ***receptor*** exposure to dieldrin in surface soil.
- ***RAO 3:*** Prevent direct exposure routes for human ***receptors*** to groundwater that has been in contact with buried waste.

Because use of a ***presumptive remedy*** is proposed for this site, the evaluation of alternatives was streamlined and only three remedial alternatives were analyzed.

SUMMARY OF REMEDIAL ALTERNATIVES

The following section summarizes the remedial alternatives developed for Site 1:

Alternative 1: No Action

A "No Action" alternative is always used as a baseline for comparison. This alternative assumes that no changes would be made to the existing conditions at the site.

Alternative 2: Focused Action

This alternative consists of the following components: 1) maintenance of the existing 2-foot minimum clean soil cover; 2) limited soil excavation to remove dieldrin-contaminated soil; 3) clean out and repair of culverts and ditches to restore optimal drainage conditions; 4) establishment and maintenance of certain ***land use controls (LUCs)***; and 5) conducting ***long-term monitoring*** of groundwater. After implementation of this containment action, the site would be available for both current and reasonably anticipated future site uses.

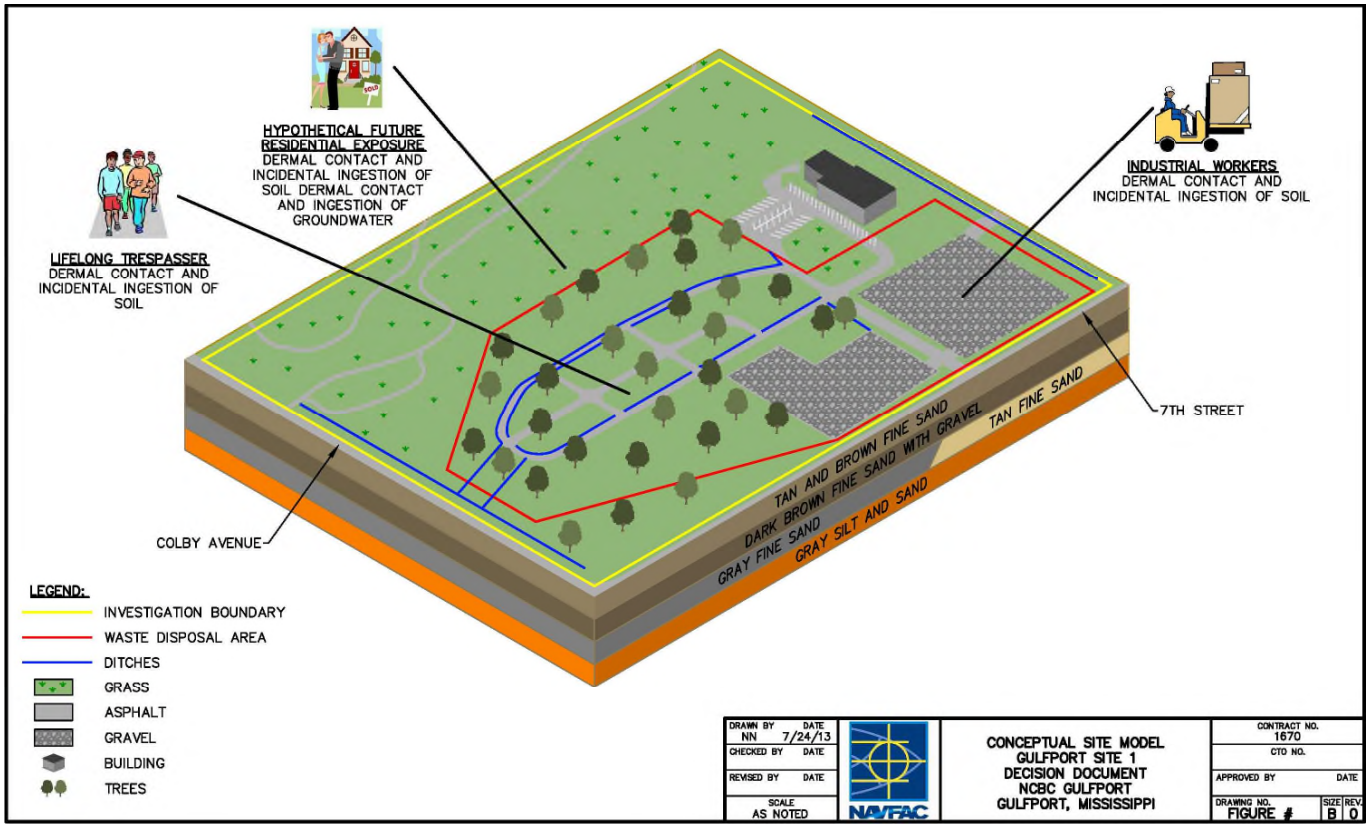


Figure 4. *The Site Conceptual Model illustrates current understanding of site conditions.*

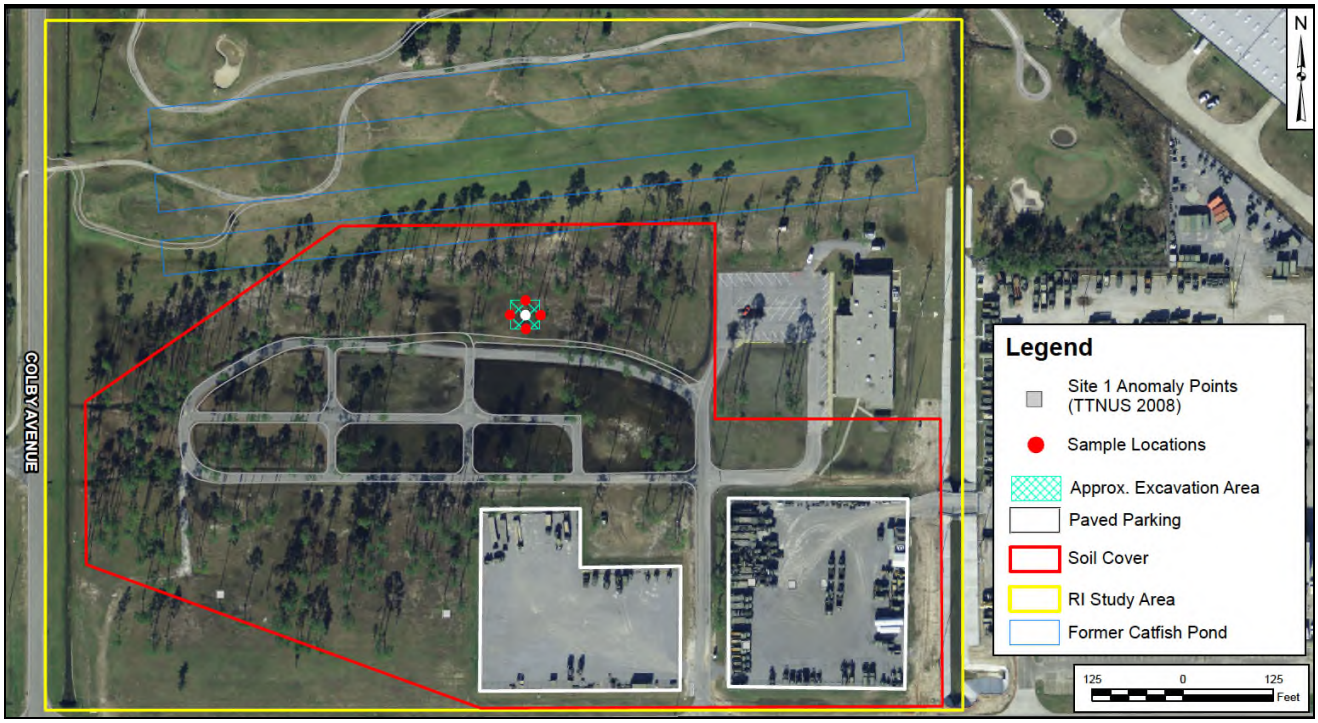


Figure 5. *Site 1 showing former landfill boundary and approximate proposed excavation area.*

Maintenance of the current soil cover across the site would prevent direct contact with contaminated subsurface soil and buried wastes and prevent any migration of soil contaminants via erosion.

Limited soil excavation would be conducted at one location in the north-central portion of the site to remove ***dieldrin***-contaminated surface soil. The location would be filled with clean fill, regraded, and seeded to match existing conditions.

Cleaning and repairing all on-site culverts and excavation of on-site ditches would help restore drainage and reduce/preclude ponding across the site. Soil/***sediment*** removed during this activity would be stockpiled, sampled and managed as required.

LUCs to be applied at the site would consist of the following:

- Prohibit future residential uses of the site;
- Prohibit excavation of soil or other intrusive activities that may compromise the integrity of the current 2-foot soil cover;
- Prohibit altering the on-site drainage system that could contribute to on-site ponding of storm water; and
- Prohibit the withdrawal of groundwater from beneath the site.

Annual ***LUC*** compliance inspections would be conducted to ensure that these implemented ***LUCs*** are being maintained. Figure 6 shows the Site 1 area that will be restricted for future use with implementation of the ***LUCs*** (referred to as "***LUC*** boundaries").

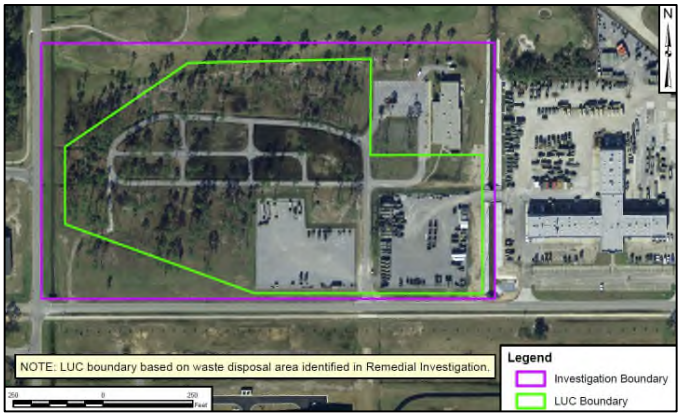


Figure 6: *Site 1 LUC boundaries.*

Long-term monitoring of groundwater would consist of periodically collecting groundwater samples from 12 monitoring wells to detect if contaminants are moving from the site.

Alternative 3: Comprehensive Action

This alternative consists of the following components: 1) landfill soil cap installation; 2) landfill gas management/monitoring; 3) implementation and maintenance of certain ***LUCs***; and, 4) ***long-term monitoring*** of groundwater. As with Alternative 2, after implementation of this alternative the site would be available for both current and reasonably anticipated future land uses.

Under this alternative, a landfill "cap" would be constructed as a surface cover consistent with MDEQ solid waste regulations. The constructed cap would consist of three layers: a topsoil layer to prevent surface erosion, an underlying low permeability layer (2 feet of clean fill) to enhance prevention of rainwater infiltration into the landfill and a gas-venting layer to manage landfill gas. Additionally for Site 1, the dieldrin contaminated surface soil would be isolated during site preparation and placed beneath the cap prior to construction. Prior to installing the final cover, the site would be regraded to promote runoff from the site.

LUCs similar to those proposed under Alternative 2 would be implemented and maintained to prevent future residential development, the withdrawal of groundwater or any soil excavations or other intrusive activities that could result in exposure to impacted subsurface soil or landfill wastes. Periodic inspections would similarly be conducted to ensure that those implemented ***LUCs*** are being maintained not been damaged and to determine if maintenance to the surface is required.

Landfill gas would be managed to prevent the excess accumulation of methane gas below the cap. Methane gas is created when the waste within the landfill degrades. Methane concentrations would be measured at landfill vents and from probes installed during the remedial action.

Long-term monitoring of groundwater would consist of periodically collecting groundwater samples from selected wells to assess the effectiveness of the landfill cap at the site.

EVALUATION OF ALTERNATIVES

The remedial alternatives were compared to each other using the nine criteria established by the ***NCP*** (see "Summary of Evaluation of Alternatives Using the Nine Criteria" on the following page). Please consult the Site 1 ***FS*** Report for more detailed information. The following is a summary of these comparisons.

What are Applicable or Relevant and Appropriate Requirements (ARARs)?

ARARs stands for "Applicable or Relevant and Appropriate Requirements". The following types of legal requirements are addressed in a cleanup action:

- Chemical-specific ***ARARs*** address concentrations of contaminants that the cleanup must meet. The MDEQ Target Remediation Goals are chemical-specific ***ARAR***s for Site 1.
- Action-specific ***ARARs*** regulate how a cleanup remedy is implemented and define how contaminants are managed.
- Location-specific ***ARARs*** address legal issues for special location such as wetlands and tribal lands. There are no location-specific ***ARARs*** for Site 1.

1. Overall Protection of Human Health and the Environment

Alternative 1 would not be protective of human health and the environment because there would be nothing to prevent exposure to contaminants in soil and groundwater. Alternative 1 would not meet the ***RAOs***.

Alternative 2 would be protective of human health and the environment because limited soil excavation would remove the area of surface soil contamination and the soil cover would ensure that future potential site users would be protected from exposure to buried waste or unacceptable levels of contaminants associated with the landfill contents. ***LUCs*** would preclude residential uses of the site and prevent potential exposure to the remaining landfill materials and unacceptable levels of contaminants in soil and groundwater. The site would be suitable for revegetation. All of the ***RAOs*** would be met under this alternative.

Alternative 3 would be protective of human health and the environment because soil cover/cap over the area of contamination would ensure that future potential site users would be protected from exposure to unacceptable levels of contaminants. ***LUCs*** would restrict residential and commercial/industrial uses of the site and prevent potential exposure to the remaining landfill materials and unacceptable levels of contaminants in soil and groundwater. The site would be suitable for revegetation. All of the ***RAOs*** would be met under this alternative.

2. Compliance with ARARs

Alternative 1 would not comply with ***ARARs*** because unacceptable levels of contaminants would remain at the site and exposure to the contaminants would not be controlled.

Alternative 2 would comply with ***ARARs*** because exposure to ***media*** with contaminant concentrations greater than regulatory criteria would be prevented by the landfill soil cover and application of ***LUCs***.

Alternative 3 would comply with ***ARARs*** because exposure to contaminant concentrations greater than regulatory criteria would be prevented by the landfill cover/cap and application of ***LUCs***.

Summary of Evaluation of Alternatives Using the Nine Criteria			
Evaluation Criteria	**Alternative 1: No Action**	**Alternative 2: Focused Action**	**Alternative 3: Comprehensive Action**
1. Overall Protectiveness of Human Health and the Environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through ***land use controls*** or treatment	Would not reduce toxicity, mobility, or volume of waste through treatment because current site conditions would not change.	Would remove dieldrin contaminated soil for off-site disposal and prohibit future use associated with human health risk.	Would relocate dieldrin contaminated soil beneath the cap and prohibit future use associated with human health risk.
2. Compliance with *ARARs* evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site.	Would not meet any ***ARARs***.	Would meet all chemical-, location-, and action-specific ***ARARs*** to the extent they exist. Would meet all chemical-, location-, and action-specific ***ARARs*** to the extent they exist.	
3. Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.	Would not have long-term effectiveness or permanence.	Would have long-term effectiveness and permanence because it would remove contaminated surface soil and cover the waste to prevent direct exposure. ***LUCs*** would prevent disturbance of the landfill cover and use of groundwater. ***Long-term monitoring*** would detect migration of contaminants from the site.	
4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.	None of the alternative would utilize direct treatment to reduce the toxicity, mobility, or volume of hazardous substances. Because of the type of contamination at Site 1 and its relatively low long-term risk-based on current and anticipated future site use, direct treatment was deemed impracticable.		
5. Short-term Effectiveness considers the length of time needed to implement an alternative and the risk the alternative poses to workers, residents, and the environment during implementation.	Would not pose any risks to on-site workers or result in short-term adverse impact to the local community and the environment.	Excavation and handling of impacted soil under the focused and comprehensive action alternatives would pose short-term risks because on-site activities would involve a greater opportunity for exposure of remediation workers to contaminated soil. The use of personal protective equipment, monitoring equipment, and observance of Occupational Safety and Health Administration guidelines would address these concerns. Dust, stormwater and erosion, noise abatement, and other construction-related issues would be addressed and control measures implemented during construction activities. The time to complete the excavation and meet the RAOs is estimated to be approximately 1 year.	
6. **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.	Would be readily implementable. Technical feasibility criteria and administrative measures are not applicable.	Would be implementable. Excavation and earthmoving equipment considered under this alternative are typical in the construction industry and readily available from several local sources. Off-site borrow locations for clean soil can be identified. Establishment of ***LUCs*** would require negotiation and agreement on the specifics of the procedures between the Navy and regulatory agencies.	
7. **Cost** includes estimated capital and annual ***operation and maintenance (O&M)*** costs, as well as present worth cost.	$0	$910,000	$5,064,000
8. **State/Support Agency Acceptance** considers whether the state agrees with the Navy's analyses and recommendations, as detailed in the ***RI, FS***, and Proposed Plan.	MDEQ would not accept this remedy.	Based on ongoing discussions with MDEQ , State concurrence with this alternative is anticipated.	Not selected as the ***preferred alternative***.
9. Community Acceptance considers whether the local community agrees with the Navy's analyses and ***preferred alternative***. Comments received on the Proposed Plan are an important indicator of community acceptance.	Not selected as the ***preferred alternative***.	To be determined during the Public Comment Period.	Not selected as the ***preferred alternative***.

3. Long-term Effectiveness and Permanence

Alternative 1 would have no long-term effectiveness or permanence because waste would remain on site and there would be no ***LUCs*** to prevent human exposure and no monitoring to detect potential contaminant migration.

Alternative 2 would be effective long-term and permanent because the soil cover would provide a barrier that would prevent human and ecological ***receptors*** from unacceptable exposure to contaminants at the site, and ***LUCs*** would provide further protection against inadvertent exposure to contaminants/wastes below the surface.

Alternative 3 would be effective long-term and permanent because the soil cover/cap would likewise provide a barrier that would prevent human and ecological ***receptors*** from unacceptable exposure to contaminants at the site, and ***LUCs*** would provide further protection against inadvertent exposure to contaminants in the subsurface.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 would not reduce toxicity, mobility, or volume of waste through treatment because current site conditions would not change.

Alternative 2 would not reduce toxicity, mobility, and volume of contaminants through treatment. However, it would help to minimize future mobility of contaminants within the landfill, and the excavation of dieldrin-contaminated soil would reduce the overall toxicity and volume of known site contaminants.

Alternative 3 would also not reduce toxicity, mobility, and volume of contaminants through treatment. However, like Alternative 2, it would reduce the future potential mobility of contaminants within the landfill and landfill gas venting would prevent the accumulation of methane gas below the cap. Additionally, the excavation of dieldrin-contaminated soil would reduce the overall toxicity and volume of known site contaminants.

5. Short-term Effectiveness

Alternative 1 would not result in risks to site workers or result in short-term adverse impact to the surrounding community or environment because no remedial activities would be performed.

Both Alternatives 2 and 3 would be effective in the short-term by reducing potential risks to humans during implementation through the use of dust suppression and control measures to minimize exposure to contaminated soil particulates during on-site activities such as excavation and regrading. Erosion control measures would minimize the potential migration of soil into the adjacent ditches. On-site workers would be adequately protected using established health and safety equipment and procedures. Alternative 2 would be expected to achieve ***RAOs*** immediately upon completion of remedial actions.

6. Implementability

Alternative 1 would be readily implemented because no action would occur.

Alternative 2 would be implementable because of the following:

- It would use typical construction industry equipment for excavation and earthmoving.
- Off-site regulated disposal facilities have been identified and can accept the contaminated soil.
- Off-site locations for clean soil have been identified and are available.
- ***LUCs*** have been successfully developed by the Navy with concurrence by the MDEQ at other sites on this base.

Alternative 3 would be implementable because of the following:

- It would use typical construction industry equipment for excavation and earthmoving.
- Off-site locations for clean soil have been identified and are available.
- ***LUCs*** have been successfully developed by the Navy with concurrence by the MDEQ and at other sites on this base.

7. Cost

The capital and ***O&M*** costs of Alternative 1 is $0 since no work would be performed. For Alternative 2, the capital cost was estimated to be $251,000. The ***net present worth (NPW)*** of Alternative 2 including the capital and long-term costs is estimated at $911,000. For Alternative 3, the capital cost was estimated to be $4,352,000. The ***NPW*** of Alternative 3 including the capital and long-term costs is estimated at $5,064,000. The costs have been rounded to the nearest $1,000 to reflect the preliminary nature of these estimates.

8. State Acceptance

Based on ongoing discussions, MDEQ concurrence with Alternative 1 would not be expected. State concurrence would be expected for Alternatives 2 or 3.

9. Community Acceptance

Community acceptance of the preferred remedy will be assessed based on comments received during the Public Comment Period (April 14 to May 17, 2014) for the Site 1 Proposed Plan.

Summary of Alternatives Evaluated in the FS			
Alternative	**Components**	**Details**	**Cost**
No Action *No action to address contaminated soil and groundwater and no use restrictions*	None	No action.	No cost
Presumptive Remedy (Focused Action) *Dieldrin-contaminated soil removal, existing soil cover and site use controls to preclude exposure to buried wastes, contaminated soil and groundwater along with future site monitoring*	Excavation	Remove dieldrin-contaminated soil for off-site disposal, replace with clean fill. Removing soil and ***sediment*** from ditches to promote flow of storm water off site.	**Capital:** $251,000 **Annual *O&M* Cost:** $47,000 **30-Year *NPW*:** $910,000 **Time Frame:** 30 years
	Waste Containment	Existing soil/vegetative cover to contain waste and minimize exposure.	
	LUCs	Restriction to prevent residential land use. Prohibition on the use of groundwater or excavation of soil. Requirement to maintain integrity of soil/vegetative cover.	
	Long-term Groundwater Monitoring	Collect and analyze groundwater samples from 12 monitoring wells for selected parameters (estimated at 30 years).	
Presumptive Remedy (Comprehensive Action) *Source containment and site use controls to preclude exposure to buried wastes, contaminated soil and groundwater along with future site monitoring.*	Waste Containment	Soil/vegetative cover to contain waste and minimize exposure. Excavation of dieldrin soil and placement under cap would eliminate exposure issue.	**Capital**: $4,352,000 **Annual *O&M* Cost**: $49,000 **30-Year *NPW***: $5,064,000 **Time Frame**: 30 years
	LUCs	Restrictions to prevent residential land use. Prohibition on the use of groundwater or excavation of soil. Requirement to maintain integrity of soil/vegetative cover.	
	Long-term Groundwater Monitoring	Collect and analyze groundwater samples from 12 monitoring wells for selected parameters (estimated at 30 years).	

PREFERRED ALTERNATIVE

The ***preferred alternative*** for cleaning up Site 1 is Alternative 2: Containment Action, which includes 1) maintaining the current soil cover, 2) limited soil excavation, 3) clean out and repair of site drainage, 4) ***land use controls***, and 5) ***long-term monitoring*** of groundwater.

Because waste will remain in place with contaminants in excess of levels that allow for unlimited exposure or unrestricted use, the Navy would review the remedial action every 5 years after initiation of the remedial action [per ***CERCLA*** Section 121(c) and the ***NCP*** at 40 Code of Federal Regulations 300.430(f)(4)(ii)]. If the results of any five-year reviews show that remedy integrity is compromised and that protection of human health is insufficient, additional remedial actions would be evaluated and may be implemented by the Navy.

Based on the information currently available, the Navy believes that the ***preferred alternative*** meets the threshold criteria and complies with the modifying criteria (see "Nine Evaluation Criteria"). The Navy expects the ***preferred alternative*** to satisfy the following statutory requirements of ***CERCLA*** Section 121(b): 1) be protective of human health and the environment, 2) comply with ***ARARs***, 3) be cost effective, and 4) utilize permanent solutions to the maximum extent practical, and satisfy the preference for treatment as a principal element of the remedy.

The Navy, in conjunction with the U.S. EPA and MDEQ, will not select a final alternative until public comments have been considered.

COMMUNITY PARTICIPATION

The public is encouraged to participate in the decision-making process for the cleanup of Site 1 by reviewing and commenting on this Proposed Plan during the Public Comment Period.

Additional information on this site can be found in the ***RI*** and ***FS*** Reports and other Site 1 documents. These documents are maintained at the NCBC Gulfport ***Information Repository***, which is located at the Gulfport Public Library, 1708 25th Avenue, Gulfport, Mississippi, 39501.

A public meeting to present this Proposed Plan will be held on April 17, 2014. The date, location, and time of the public meeting, as well as the dates for the Public Comment Period and the location of the ***Information Repository***, are provided on Page 1.

Contaminants of Concern (COCs) at Site 1

COCs are substances detected at concentrations and/or in locations where they could have an adverse effect on human health and the environment. For Site 1, ***COCs*** include the following:

Dieldrin is a chlorinated hydrocarbon originally produced as an insecticide. Originally developed in the 1940s as an alternative to DDT, dieldrin proved to be a highly effective insecticide and was very widely used during the 1950s to early 1970s. Dieldrin does not easily break down in the environment. In soil, dieldrin will persist for long periods of time (more than 7 years) and may slowly evaporate. It does not readily leach to groundwater. Once in ***surface waters*** (via runoff), dieldrin adsorbs strongly to ***sediment*** and slowly degrades. Dieldrin tends to bio-accumulate in the food chain. Long-term exposure has proven toxic to a very wide range of animals including humans, far greater than to the original insect targets. For this reason it is now banned in most of the world. Health problems associated with dieldrin include affects to the human immune, reproductive, and nervous systems.

PCE is a chlorinated hydrocarbon that is an excellent solvent for organic substances. It is volatile (evaporates easily), highly stable, and nonflammable. For these reasons it is widely used for dry cleaning and hence is sometimes called “dry cleaning fluid.” It is also used to degrease metal parts and sometimes appears in paint strippers and spot removers. PCE is a common soil contaminant. It is mobile in groundwater, toxic at low concentrations, and denser than water. PCE has been classified as a probable human carcinogen. PCE can enter the body through the lungs or skin.

Iron occurs naturally as a mineral from ***sediment*** and rocks or from mining, industrial waste, and corroding metal. Iron imparts a bitter astringent taste to water and a brownish color to laundered clothing and plumbing.

Manganese occurs naturally as a mineral from ***sediment*** and rocks or from mining and industrial waste. Manganese can cause affect the taste of water and cause dark brown or black stains on plumbing fixtures. It is relatively non-toxic to animals but toxic to plants at high levels.

Thallium enters the environment from soil. It is used in electronics, pharmaceutical manufacturing, glass, and alloys. Exposure to high levels of thallium over a lifetime can damage to kidneys, liver, brain, and intestines in laboratory animals.

Glossary

This glossary defines the bolded, italicized terms used in the Proposed Plan. The definitions in this glossary apply specifically to this Proposed Plan and may have other meanings when used in different circumstances.

Applicable or Relevant and Appropriate Requirements (ARARs): The federal, state, and local environmental rules, regulations, and criteria that must be met by the selected remedy under ***CERCLA***.

Contaminant of Concern (COC): A substance detected at a concentration and/or in a location where it could have an adverse effect on human health and the environment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law also known as "Superfund". This law was passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. The Department of Defense complies with ***CERCLA*** requirements via their ***Environmental Restoration Program***.

Dioxins: ***Dioxins*** are a class of chemical contaminants that are formed during combustion processes such as waste incineration, forest fires, and backyard trash burning, as well as during some industrial processes such as paper pulp bleaching and herbicide manufacturing. The most toxic chemical in the class is 2,3,7,8-tetrachlorodibenzo-para-dioxin (TCDD). The highest environmental concentrations of ***dioxin*** are usually found in soil and ***sediment***, with much lower levels found in air and water.

Ecological Risk Assessment: A study that evaluates the potential risk to ecological ***receptors*** (various types of plants and animals) from contaminants at a site.

Environmental Restoration Program: The Department of Defense Program established to comply with ***CERCLA*** regulations and the ***National Contingency Plan***.

Feasibility Study (FS): A report that presents the development, analysis, and comparison of cleanup alternatives for a site that has undergone an ***RI***.

Human Health Risk Assessment: A study that evaluates the potential risk to human ***receptors*** (such as site workers and residents) from contaminants at a site.

Information Repository: The public collection of documents related to the investigations and cleanup actions for the site.

Initial Assessment Study (IAS): The first environmental investigations completed in the ***Environmental Restoration Program***. These studies involved record searches, interviews, and visual observations to determine whether the study area merited further investigation. Initial Assessment Studies have since been replaced a similar study called a Preliminary Assessment.

Landfill Gas Survey: A survey to assess whether landfill gas (methane) is being generated and if it is accumulating under and within structures on the site.

Land Use Controls (LUCs): Engineered and non-engineered measures formulated and enforced to regulate current and future land use options. Engineered measures include fencing and posting. Non-engineered measures typically consist of administrative deed restrictions that prohibit residential development and/or groundwater use.

Long-term Monitoring: A program used to verify the site status, which typically involves groundwater sampling. The intent is to ensure that site conditions do not change in a way that might adversely affect the environment or public.

Media (environmental): All of the non-living components of the natural environment. In environmental studies ***media*** typically refers to soil, water, and air.

Maximum Contaminant Level: The legal threshold limit on the amount of a hazardous substance that is allowed in drinking water under the Safe Drinking Water Act.

National Contingency Plan (NCP): Formally known as the National Oil and Hazardous Substances Pollution Contingency Plan, is the federal government's blueprint for responding to both oil spills and hazardous substance releases.

National Priorities List: USEPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund.

Net Present Worth (NPW): A costing technique that expresses the total of initial capital cost and long-term ***O&M*** costs in terms of present day dollars

Operation and Maintenance (O&M): Activities conducted after a site action is completed to ensure that the action is effective.

Pesticides: A chemical or biological agent that, through its effect deters, incapacitates, kills, or otherwise discourages pests. Target pests can include insects, plant pathogens, weeds, mollusks, birds, mammals, fish, nematodes (roundworms), and microbes that destroy property, cause nuisance, spread disease or are vectors for disease.

Polychlorinated Biphenyls: A family of highly toxic chemical compounds consisting of two benzene rings in which chlorine takes the place of two or more hydrogen atoms.

Preferred Alternative: The remedy recommended by the Navy for cleaning up a site. The remedy may be modified or changed based on comments received during the Public Comment Period.

Presumptive Remedy: A standardized proven technology to cleanup a specific type of site such as a municipal landfill. ***Presumptive Remedies*** have been shown to ensure consistency in remedy selection and reduce the cost and time required for investigation and remediation of similar types of sites.

Receptor (Ecological Risk Assessment): Ecological ***receptors*** includes any living organisms other than humans, the habitat which supports such organisms, or natural resources which could be adversely affected by environmental contaminations resulting by a release at or migration from a site.

Receptor (Human Health Risk Assessment): Any human individual or population that are presently or will potentially be exposed to, and adversely affected by, the release or migration of contaminants.

Remedial Action Objective (RAO): A cleanup objective agreed on by the Navy, USEPA, and MDEQ. One or more ***RAOs*** are typically formulated for each environmental site.

Remedial Investigation (RI): A report that describes the site, documents the type and distribution of environmental contaminants detected, and presents the results of the ***human health*** and ***ecological risk assessments***.

Sediment: Solid material deposited in ***surface water*** bodies such as ditches, streams, or lakes.

Soil Gas Survey: An investigative technique to measure air that is present in the void spaces of the soil above the groundwater table.

Surface Water: Water bodies that are on land surface such as lakes, river, streams, and ditches. The ***surface water*** bodies at Site 1 are the ditches to the east and west site boundaries, not within site boundaries

This page intentionally left blank.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for Site 1, Disaster Recovery Disposal Area, is important to the Navy. Comments provided by the public are valuable in helping the Navy select a final cleanup remedy for the site.

You may use the space below to write your comments then fold and mail. Comments must be postmarked by May 17, 2014. If you have any questions about the comment period, please contact Gordon Crane, NCBC Gulfport, at (228) 229-0446. Those with electronic capabilities may submit their written comments to the Navy at the following e-mail address: gordon.crane@navy.mil.

Name: _____

Address: _____

City: _____

State: _____ **Zip:** _____

Fold, staple, stamp, and mail ----------

Place
Stamp
Here

MR. GORDON CRANE
RESTORATION MANAGER
NAVAL CONSTRUCTION BATTALION CENTER
2401 UPPER NIXON AVENUE
GULFPORT MS 39501